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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,276	06/27/2003	Michael A. Centanni	ST8010US	8508
22203	7590	08/04/2005	EXAMINER	
KUSNER & JAFFE HIGHLAND PLACE SUITE 310 6151 WILSON MILLS ROAD HIGHLAND HEIGHTS, OH 44143			SINES, BRIAN J	
			ART UNIT	PAPER NUMBER
			1743	

DATE MAILED: 08/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/608,276

Applicant(s)

CENTANNI, MICHAEL A.

Examiner

Brian J. Sines

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 10-19, 22-24, 45-54 and 58-60 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10-19, 22-24, 45-54 and 58-60 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Claims 8, 9, 20, 21, 25 – 44 & 55 – 57 were canceled in the response filed 5/26/2005.

Allowable Subject Matter

The indicated allowability of claims 8, 9, 55 & 56 is withdrawn in view of the newly discovered reference(s) to Lewis et al. (U.S. Pat. No. 6,631,333 B1). Rejections based on the newly cited reference(s) follow.

Response to Arguments

Applicant's arguments with respect to the pending claims have been considered, but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

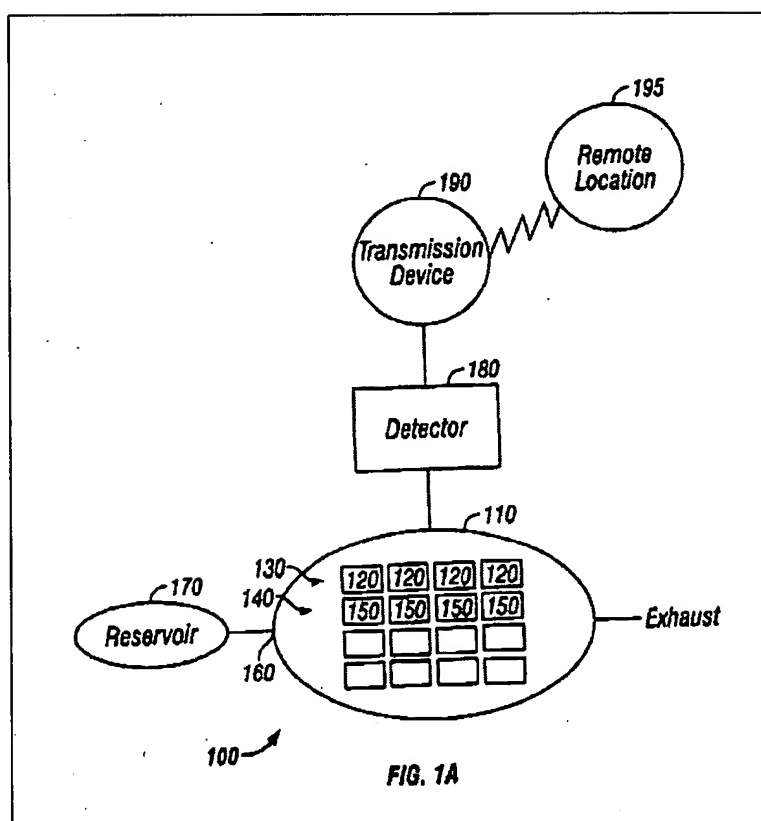
(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

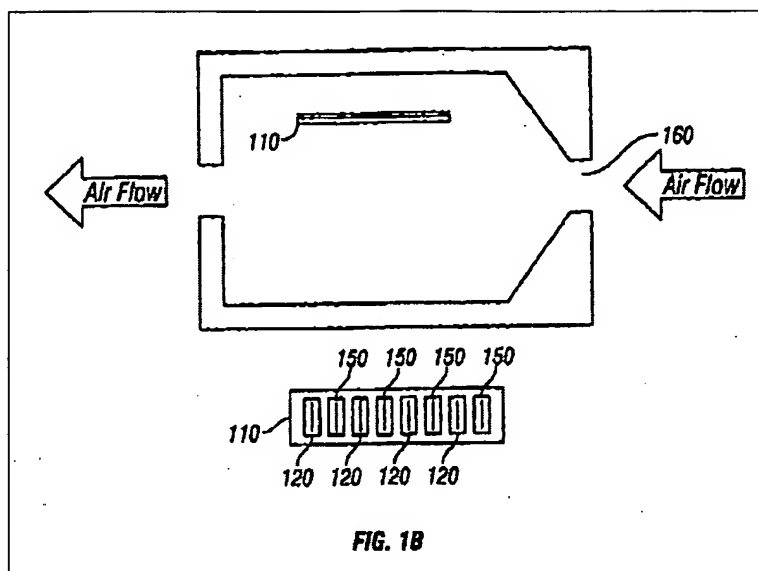
Claims 1 – 3, 10 – 12, 22 – 24, 45 – 51 & 58 – 60 are rejected under 35 U.S.C. 102(e) as being anticipated by Lewis et al. (U.S. Pat. No. 6,631,333 B1) (hereinafter “Lewis”).

Regarding claims 1 – 3, Lewis teaches a sensing apparatus comprising: a sensing element (120) comprised of an electroactive material (e.g., polyacetylene); a means for generating an electrical current (e.g., an electrical measuring apparatus) that passes through the sensing element; and a means (detector 180) for determining a change in an electrical property of the electroactive material. Lewis teaches that the detection apparatus operates by both varying the

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frequency of the electrical current employed and the temperature during measurement to allow for the effective detection of a chemical analyte (see col. 20, line 58 – col. 21, line 35; col. 22, lines 35 – 49; col. 23, line 28 – col. 25, line 20). Lewis teaches that the chemically sensitive resistor elements comprise an electrical path through which electrical current provided by the electrical measuring apparatus may flow (see col. 23, lines 28 – 39). Thus, it is inherently anticipated that the electrical measuring apparatus would further act as a heating means for the electroactive material due to the inducement of electrical current flow through the sensing element (see MPEP § 2112 & § 2112.01).





Lewis teaches all of the positively recited structural limitations of the claimed apparatus. The recitation that the sensing apparatus is utilized for the detection of *vaporized* hydrogen peroxide *inside of a chamber* is considered a process or intended use limitation. The Courts have held that it is well settled that the recitation of a new intended use, for an old product, does not make a claim to that old product patentable. See *In re Schreiber*, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997). The Courts have held that apparatus claims must be structurally distinguishable from the prior art in terms of structure, not function. See *In re Danley*, 120 USPQ 528, 531 (CCPA 1959); and *Hewlett-Packard Co. V. Bausch and Lomb, Inc.*, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). The Courts have held that the manner of operating an apparatus does not differentiate an apparatus claim from the prior art, if the prior art apparatus teaches all of the structural limitations of the claim. See *Ex Parte Masham*, 2 USPQ2d 1647 (BPAI 1987) (see MPEP § 2114).

Regarding claims 4, 16 & 51, Lewis teaches the use of dopants (see col. 20, line 58 – col. 21, line 11).

Regarding claims 10 – 12, Lewis teaches the incorporation of a computer system for monitoring and controlling the sensing apparatus (see, e.g., col. 9, lines 18 – 25). The utilization of computer systems, which comprise various memory and processing means, with automated detection systems are well known in the art (see MPEP § 2144.03). The Courts have held that it is well settled that the recitation of a new intended use, for an old product, does not make a claim to that old product patentable. See *In re Schreiber*, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997). The Courts have held that apparatus claims must be structurally distinguishable from the prior art in terms of structure, not function. See *In re Danley*, 120 USPQ 528, 531 (CCPA 1959); and *Hewlett-Packard Co. V. Bausch and Lomb, Inc.*, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). The Courts have held that the manner of operating an apparatus does not differentiate an apparatus claim from the prior art, if the prior art apparatus teaches all of the structural limitations of the claim. See *Ex Parte Masham*, 2 USPQ2d 1647 (BPAI 1987) (see MPEP § 2114).

Regarding claims 13 – 16, 22 – 24, 45, 49, 50, 58 & 59, as discussed above, Lewis teaches all of the structure of the apparatus provided in the claimed method, which merely recites the conventional operation of that apparatus. Lewis further teaches that the electrical impedance properties of the conductive polymer composite materials comprising each of the sensors will vary upon exposure to the target analyte (see col. 4, lines 31 – 52). Lewis further teaches the during the process for the detection of an analyte, a response profile is generated continuously over time (see col. 7, lines 8 – 65). Hence, it is inherently anticipated that electrical conductivity versus time response curve, and including the slope of the curve, will change for each sensor. Lewis also teaches the use of stored characteristic response patterns saved in a library for

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identifying different target analytes (see col. 10, lines 21 – 35). Regarding process or method claims, a prior art device anticipates a claimed process, if the device carries out the process during normal operation (see MPEP § 2112.02). Furthermore, when the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent (see MPEP § 2112.01).

Regarding claims 13 & 46 – 48, Lewis anticipates various analyte sensing applications, such as for halide derivatives detection, uses in biomedicine, ethylene oxide detection, anaesthetics & sterilization gas detection, etc. (see col. 11, line 36 – col. 14, line 9). It should be noted that hydrogen peroxide is well known in the art to be an antiseptic or sterilizing agent (see MPEP § 2144.03).

Regarding claim 60, polyacetylene is well known in the art to be semicrystalline, thus comprising both crystalline and noncrystalline phases, and therefore containing amorphous regions (see MPEP § 2144.03).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

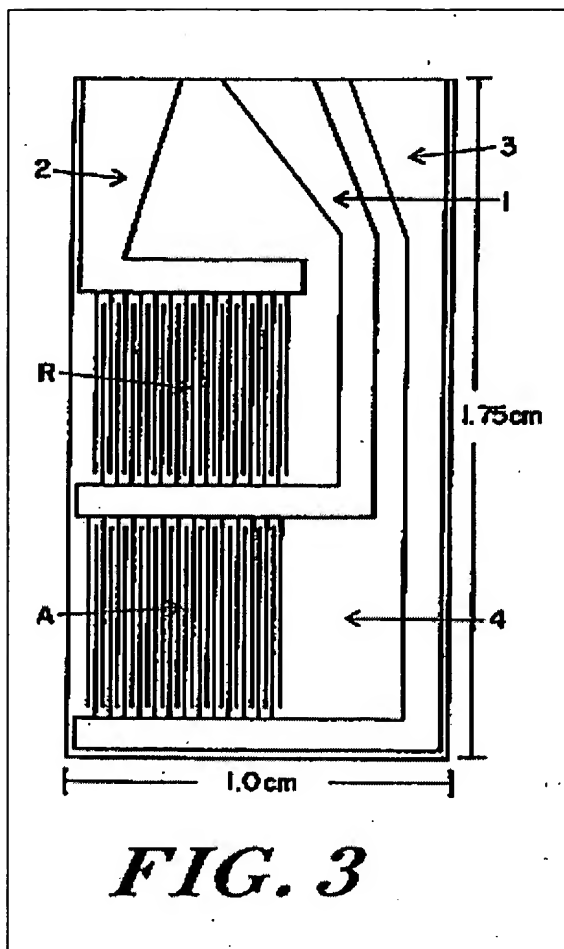
The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
1. Claims 1 – 5, 10 – 17, 22 – 24, 45 – 52 & 58 – 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guiseppi-Elie (U.S. Pat. No. 5,352,574 A) in view of Lewis.

Regarding claims 1 – 5, Guiseppi-Elie teaches a sensing apparatus comprising: a sensing element comprising an electroactive material (e.g., a polymeric film deposited on interdigitated grid area A); and a concentration determination means, which is based upon change in electrical conductivity (see col. 6, lines 14 – 28; col. 7, lines 3 – 11; figure 3). Guiseppi-Elie indicates that the disclosed sensing apparatus is suitable for use in sensing gaseous samples (see col. 11, lines 3 – 12).



Guiseppi-Elie does not specifically teach the incorporation of a means for generating an electrical current that passes through the sensing element, wherein the electrical current heats the electroactive material. Guiseppi-Elie does teach the incorporation of polyacetylene for detecting hydrogen peroxide (see col. 7, lines 3 – 11). Lewis teaches a detection apparatus, which utilizes electroactive polymer materials, and which operates by both varying the frequency of the electrical current employed and the temperature during measurement to allow for the effective detection of a chemical analyte (see col. 20, line 58 – col.21, line 35; col. 22, lines 35 – 49; col. 23, line 28 – col. 25, line 20). Lewis also teaches the incorporation of polyacetylene for sensing (see col. 22, lines 35 – 49). Lewis teaches that the chemically sensitive resistor elements

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comprise an electrical path through which electrical current provided by the electrical measuring apparatus may flow (see col. 23, lines 28 – 39). Thus, it is inherently anticipated that the electrical measuring apparatus would further act as a heating means for the electroactive material due to the inducement of electrical current flow through the sensing element (see MPEP § 2112 & § 2112.01). Guiseppi-Elie further teaches the incorporation of dopants, such as iodine (see col. 3, lines 1 – 18). Lewis also indicates the use of dopants in sensor design (see col. 20, line 58 – col. 21, line 35). Since both of the disclosed sensing devices utilize the same electroactive material, e.g., polyacetylene, for sensing, and since Lewis has recognized the utility of employing a varying electrical current frequency and varying sensor temperature during sensor operation to facilitate effective measurements, a person of ordinary skill in the art would accordingly have had a reasonable expectation for success in incorporating such a methodology and means for utilizing such a methodology in the disclosed sensor as claimed. The Courts have held that the prior art can be modified or combined to reject claims as *prima facie* obvious as long as there is a reasonable expectation of success. See *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986) (see MPEP § 2143.02). Therefore, it would have been obvious to a person of ordinary skill in the art to incorporate within the disclosed sensing apparatus a sensing element comprising an electroactive material, and including a means for generating an electrical current that passes through the sensing element, wherein the electrical current heats the electroactive material as claimed. Guiseppi-Elie and Lewis teaches all of the positively recited structural limitations of the claimed apparatus. The recitation that the sensing apparatus is utilized for the detection of *vaporized* hydrogen peroxide *inside of a chamber* is considered a process or intended use limitation.

Regarding claims 10 – 12, Lewis teaches the incorporation of a computer system for monitoring and controlling the sensing apparatus (see, e.g., col. 9, lines 18 – 25). The utilization of computer systems, which comprise various memory and processing means, with automated detection systems are well known in the art (see MPEP § 2144.03). The Courts have held that it is well settled that the recitation of a new intended use, for an old product, does not make a claim to that old product patentable. See *In re Schreiber*, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997). The Courts have held that apparatus claims must be structurally distinguishable from the prior art in terms of structure, not function. See *In re Danley*, 120 USPQ 528, 531 (CCPA 1959); and *Hewlett-Packard Co. V. Bausch and Lomb, Inc.*, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). The Courts have held that the manner of operating an apparatus does not differentiate an apparatus claim from the prior art, if the prior art apparatus teaches all of the structural limitations of the claim. See *Ex Parte Masham*, 2 USPQ2d 1647 (BPAI 1987) (see MPEP § 2114).

Regarding claims 13 – 17, 22 – 24, 45, 58 & 59, as discussed above, Guiseppi-Elie in view of Lewis teaches all of the structure of the apparatus provided in the claimed method, which merely recites the conventional operation of that apparatus. Lewis further teaches that the electrical impedance properties of the conductive polymer composite materials comprising each of the sensors will vary upon exposure to the target analyte (see col. 4, lines 31 – 52). Lewis further teaches during the process in the detection of an analyte, a response profile is generated continuously over time (see col. 7, lines 8 – 65). Hence, it is inherently anticipated that electrical conductivity versus time response curve, and including the slope of the curve, will change for each sensor. Lewis also teaches the use of stored characteristic response patterns saved in a

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library for identifying different target analytes (see col. 10, lines 21 – 35). Regarding process or method claims, a prior art device anticipates a claimed process, if the device carries out the process during normal operation (see MPEP § 2112.02). Furthermore, when the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent (see MPEP § 2112.01). Therefore, it would have been obvious to a person of ordinary skill in the art to perform the method recited in the instant claims upon the disclosed apparatus, as such is the intended operation of that apparatus.

Regarding claims 46 & 47, Guiseppi-Elie indicates the use of the disclosed sensor for sensing gaseous or vaporized hydrogen peroxide (see col. 7, lines 3 – 11; col. 11, lines 3 – 12). Hydrogen peroxide is well known in the art to be an antiseptic or sterilizing agent (see MPEP § 2144.03).

Regarding claim 48, Guiseppi-Elie indicates that the disclosed sensing apparatus can detect bromine (see col. 3, lines 1 – 18).

Regarding claims 49 & 50, Guiseppi-Elie teaches the use of polyacetylene as a sensing material (see col. 3, lines 1 – 18).

Regarding claims 51 & 52, Guiseppi-Elie teaches the incorporation of an iodine dopant (see col. 3, lines 1 – 18).

Regarding claim 60, polyacetylene is well known in the art to be semicrystalline, thus comprising both crystalline and noncrystalline phases, and therefore containing amorphous regions (see MPEP § 2144.03).

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2. Claims 6, 7, 18, 19, 53 & 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guiseppi-Elie and Lewis, as applied to claims 1 – 5 above, and further in view of Nahass et al. (U.S. Pat. No. 5,651,922 A) (hereinafter “Nahass”).

Guiseppi-Elie and Lewis do not specifically teach the incorporation of a pitch-based carbon/graphite fiber material. Guiseppi-Elie does teach the incorporation of a bromine dopant (see col. 3, lines 4 – 18). Nahass teaches the incorporation of a pitch-based carbon fiber in the manufacture of conductive polymers in order to modify or increase the conductivity of the conductive polymers to adjust sensitivity of the sensor (see col. 1, lines 15 – 39). The Courts have held that the selection of a known material, which is based upon its suitability for the intended use, is within the ambit of one of ordinary skill in the art. See *In re Leshin*, 125 USPQ 416 (CCPA 1960) (see MPEP § 2144.07). Therefore, it would have been obvious to a person of ordinary skill in the art to provide for the claimed apparatus as recited in the instant claims.

Regarding claims 18, 19, 53 & 54, as discussed above, Guiseppi-Elie in view of Lewis and Nahass teaches all of the structure of the apparatus provided in the claimed method, which merely recites the conventional operation of that apparatus. Regarding process or method claims, a prior art device anticipates a claimed process, if the device carries out the process during normal operation (see MPEP § 2112.02). Furthermore, when the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent (see MPEP § 2112.01). Therefore, it would have been obvious to a person of ordinary skill in the art to perform the method recited in the instant claims upon the disclosed apparatus, as such is the intended operation of that apparatus.

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3. Claims 6, 18 & 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis in view of Nahass.

Regarding claim 6, Lewis does not specifically teach the incorporation of a pitch-based carbon/graphite fiber material. Lewis does teach the use of carbon blacks and graphite (see Table 2). Nahass teaches the incorporation of a pitch-based carbon fiber in the manufacture of conductive polymers in order to modify or increase the conductivity of the conductive polymers to adjust sensitivity of the sensor (see col. 1, lines 15 – 39). The Courts have held that the selection of a known material, which is based upon its suitability for the intended use, is within the ambit of one of ordinary skill in the art. See *In re Leshin*, 125 USPQ 416 (CCPA 1960) (see MPEP § 2144.07). Therefore, it would have been obvious to a person of ordinary skill in the art to provide for the claimed apparatus as recited in the instant claims.

Regarding claims 18 & 53, as discussed above, Lewis in view of Nahass teaches all of the structure of the apparatus provided in the claimed method, which merely recites the conventional operation of that apparatus. Regarding process or method claims, a prior art device anticipates a claimed process, if the device carries out the process during normal operation (see MPEP § 2112.02). Furthermore, when the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent (see MPEP § 2112.01). Therefore, it would have been obvious to a person of ordinary skill in the art to perform the method recited in the instant claims upon the disclosed apparatus, as such is the intended operation of that apparatus.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Sines, Ph.D. whose telephone number is (571) 272-1263. The examiner can normally be reached on Monday - Friday (11 AM - 8 PM EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Brian J. Sines". The signature is written in a cursive, flowing style with a large initial "B".